



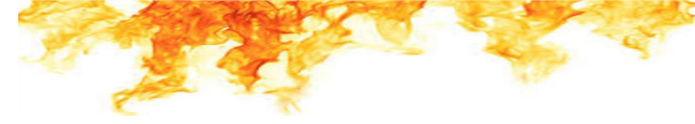
Fire Service perspective to changes and challenges in the built environment

Mary O'Brien

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Dublin Fire Brigade

What I will talk about today



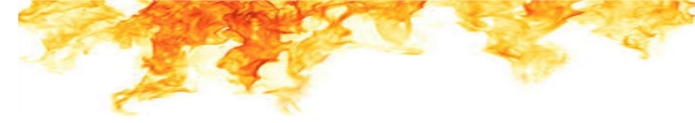
- Dublin Fire Brigade
- Rapid Development – Managing Change
 - How we build our buildings
 - How we use our buildings
 - How we endeavour to support Sustainable building
- Learning from fire events
- Fire Service response to challenges



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Dublin Fire Brigade Overview



- Dublin Fire Brigade
- Full time and retained fire & ambulance service
- 80K Ambulance responses per year
- 15K fire responses / 35K mobilisations per year
- 12 full time fire stations and 2 retained stations in the 6 Districts



Dublin Fire Brigade - Legislation

- Dublin Fire Brigade –Fire Safety and Community Fire safety section
- Fire Services Acts 1981 & 2003 and Regulations
- Building Control Act 2007 and Regulations
- Dangerous Substances Act 1972 and 2020

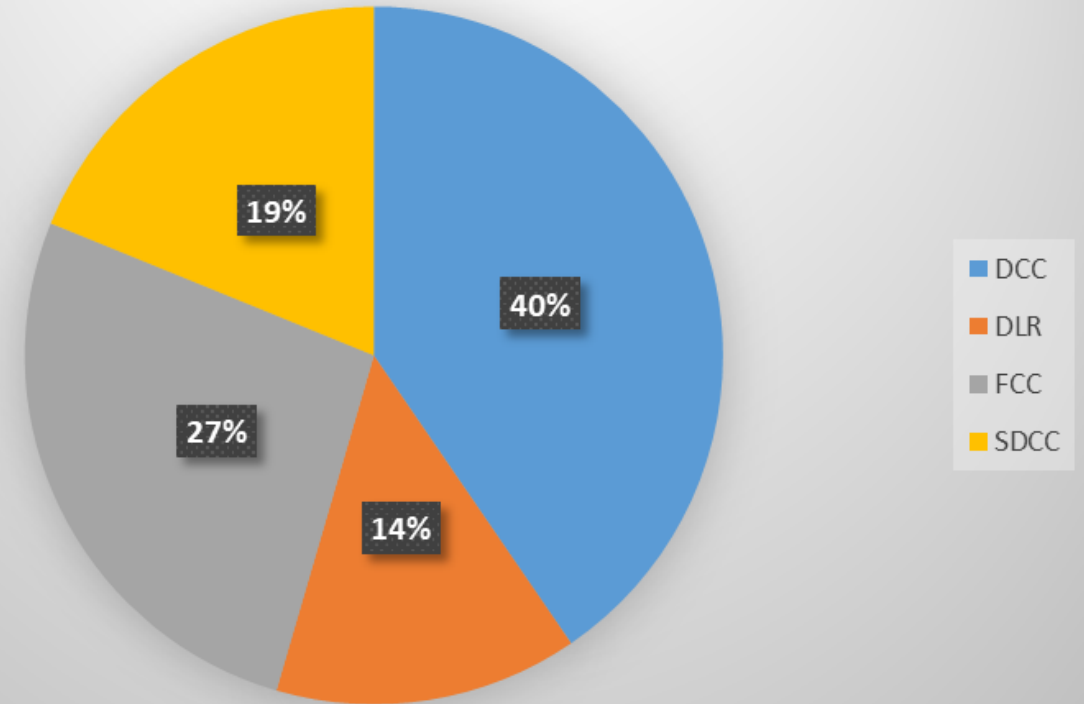


 Number 21 of 2007 BUILDING CONTROL ACT 2007 ARRANGEMENT OF SECTIONS PART 1 Preliminary and General Commencement.	 Number 30 of 1981 FIRE SERVICES ACT, 1981 ARRANGEMENT OF SECTIONS PART I Preliminary and General Section 1. Short title and commencement. 2. Interpretation. 3. Orders and regulations. 4. Offences. 5. Penalties. 6. Summary prosecution of offences. 7. Expenses of Minister. 8. Repeals. PART II Organisation of Fire Services 9. Fire authorities. 10. Functions of fire authorities. 11. Transfer of functions to fire authorities. 12. Measures to be taken in consultation with Minister for Posts and Telegraphs. 13. Advice to planning authority.
 Number 10 of 1972 DANGEROUS SUBSTANCES ACT, 1972 ARRANGEMENT OF SECTIONS PART I Preliminary	

DFB - Building Control

- 4 Local Authorities of Dublin region – part B
 - Dublin City Council
 - Fingal County Council
 - South Dublin County Council
 - Dun Laoghaire- Rathdown County Council
- Collaboration
 - DFB Operations
 - Building Control Authorities
 - NBCO

Applications Received in DFB 2024 from Dublin BCA

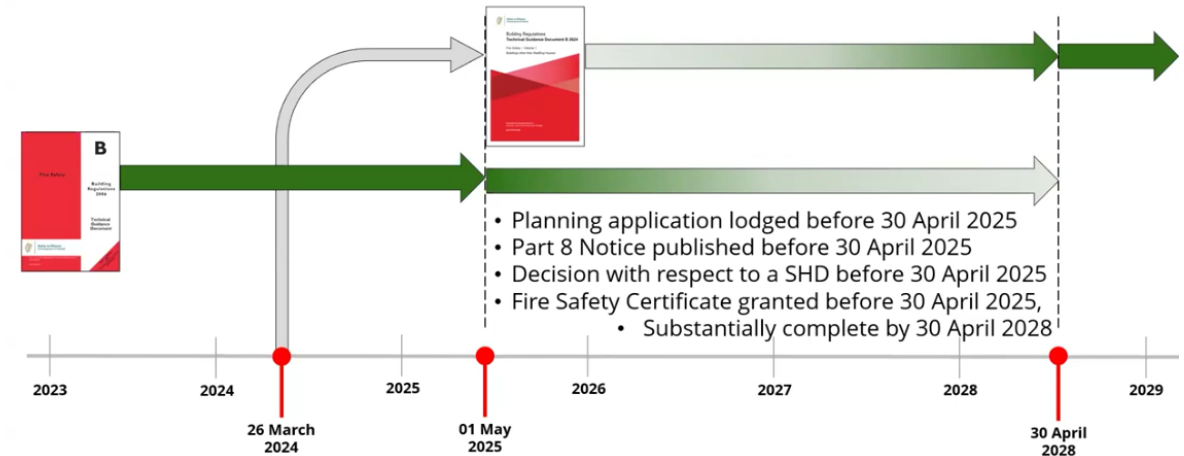


How we design and build our buildings

Regulation and Guidance change

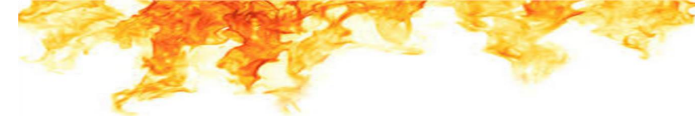
- Building Control Regulations
- TGDB 2024
 - Changes
 - Sprinklers
 - flats > 15m,
 - Nursing homes,
 - Student accommodation etc
 - Smoke control
 - Existing Buildings
 - B12
- Research Group

- Challenges
 - Prima facie compliance
 - Alternative designs ?
 - How ?
 - What information



How we design and build our buildings

Changes to building methods and complexity



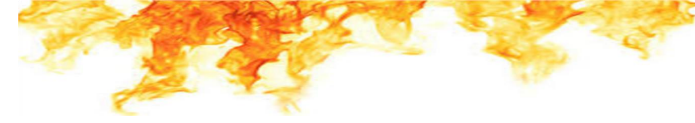
Changes in how buildings are designed and built

- Climate
 - Costs
 - Demand
 - New technology
 - Innovation
 - Sustainability
- MMC
 - Light Gauge steel LGS
 - Mass Engineered Timber MET and CLT
 - Modular construction
 - Permanent 3D volumetric modular constructs



How we design and build our buildings

Changes to building methods and complexity



Mass Engineered Timber MET

- Interdepartmental and industry Steering Group on Timber in Construction
- to create the conditions to increase the use of timber in construction whilst ensuring the highest degree of building safety and property protection;
- to examine regulatory and standardisation standards challenges; and
- to maximise the use of home-grown timber in construction

Theme 1: Market opportunity; DETE	• Analysis of markets for use of timber in construction
Theme 2: Regulation, standards and compliance; DHLGH	• Identify and address regulations and challenges to timber construction in Ireland, including fire safety • Support the development of a national technical specification for the use of Mass Engineered Timber/ CLT
Theme 3: Public procurement and demonstration projects; OPW	• Case study on exemplar timber buildings & Procurement approach
Theme 4: Research & Development; U. of Galway	• Identify and address research gaps and needs across academia
Theme 5: Communication, Education, Training and Public Awareness; Coillte	• Development of CPD and education and training etc. to encourage and support the use of wood in construction



Implement **new regulations** to encourage the use of **timber in new building** projects, supporting sustainable building materials



How we design and build our buildings

New Energy Systems

- New risks in how buildings are used
 - Alternative Energy Systems and fuels
 - Lithium-ion batteries
 - Electrical devices
 - Scooters
 - Bicycles
 - EV Cars
 - EV buses
 - Battery energy storage systems BESS



ABC News - The Walt Disney Company
Firefighters work 16 hours to put out ...



How we design our buildings

New energy systems



**Health and Safety
Executive**

Battery Energy storage systems BESS



Notifying your fire and rescue service

Under the [Dangerous Substances \(Notification and Marking of Sites\) Regulations](#), if you are an operator of a BESS site which holds 25 tonnes or more of dangerous substances, you must notify your local fire and rescue service to inform their emergency response planning.

Find your fire service on:

- [Fire England](#)
- [Scottish Fire and Rescue Service](#)
- [Mid and West Wales Fire and Rescue Service](#)
- [South Wales Fire and Rescue Service](#)
- [North Wales Fire and Rescue Service](#)

Health and safety responsibilities

If you design, install or operate BESS, you have a legal responsibility to comply with health and safety legislation, including:

- [Health and Safety at Work Act](#) – places legal duties on employers to manage risks to employees, other workers and the public
- [Dangerous Substances and Explosive Atmospheres Regulations](#) – set minimum requirements for the protection of workers and others from fire and explosion risks
- [Electricity at Work Regulations](#) – require precautions to be taken against the risk of death or personal injury from electricity in work activities
- [Management of Health and Safety at Work Regulations \(on legislation.gov.uk\)](#) – require risks to be assessed and appropriately managed
- [Construction Design and Management Regulations](#) – set requirements to ensure the whole construction project is carried out in a way that secures health and safety
- [Dangerous Substances \(Notification and Marking of Sites\) Regulations](#) – requires the operators of sites which hold 25 tonnes or more of a dangerous substance to [notify their local fire and rescue service](#) in writing, and to display signs

If you comply with these regulations you will manage the health and safety risks of BESS.



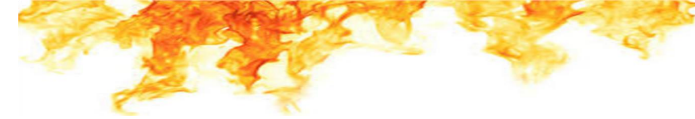
Fire at Carnegie
(Liverpool B)



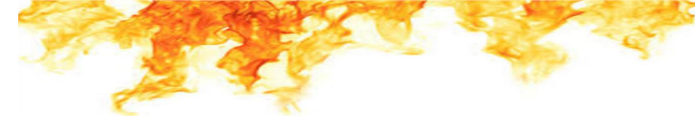
Learning from fire events

Car Parks

- Guidance
- Modern cars
- Modern car parks and car lifts
- Car stackers
- Examples of fires in car parks
- Sprinklers



Learnings from fire events



- Luton airport car park fire – 2023
 - 1400 vehicles involved
 - 100 fire fighters
- Douglas Shopping Centre Car Park 2019
- Kings Dock Car Park Fire, Liverpool – 2017
(Merseyside Fire & Rescue Service Fire Incident Report)
 - 1,150 vehicles affected by fire
 - Reported that additional vehicles became involved “every 30 seconds”. The rate increased exponentially up to rapid fire development on level 4
 - BA Crews withdrawn due to untenable conditions and Firefighter safety concerns
- Gretchenbach, Switzerland, 2004
 - 7 Fire Fighters died
 - 100 cars involved



Learning from fire events

Warehouses

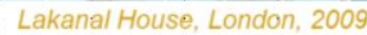
- Larger sites
- Complex buildings
- Automated
- data centres & energy storage systems
- Fire events



Ocada Food storage facility Andover UK -2019



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Fire Service Response

Operational Preparedness

- Pre Incident Planning
- Operational Intelligence
- Training - new building systems
- Standard Operational guidelines SOG – fighting fires in tall buildings
- Incident Command system
- Equipment
- Tactics and equipment for car park fires
- National Framework for Major Emergency Management under review



Lithium-ion battery categorisation for emergency response - common uses

Category	Smaller Devices	Personal Mobility Devices (PMD)	Utility Task Electric Vehicle (UTEV)	Road Registered EV (EVs)	Battery Energy Storage Systems (BESS)
					
OEM guidance	No ERG	No ERG	No ERG	Most ERGs available	Most ERGs available
Risk	Low risk	High risk	Moderate risk	Very low risk	Very low risk
Response	Submerge	Submerge	Cool	Cool Burn Submerge	Burn

Heating Ventilation and Air Conditioning Systems (HVAC)

The operation of these systems within the building can cause unpredictable and rapid fire and smoke spread.



Cable Entanglement

There is a risk of ceiling collapse which could contribute to entanglement in electrical or telecommunications cabling displaced from cable trunking, fixtures or failure of a false ceiling.

The risk is greatest from surface mounted trunking, which can be found in both residential and commercial buildings.



Source: SOG 3.02 – Fighting Fires in Tall Buildings (2024)



Takeaway thoughts !

- Guidance – regular update from learnings from real fires, research and scientific evidence
- Design & Compliance - Pragmatic solutions to achieve compliance
- Fire Service Operational intelligence
- Safety of all people in buildings including fire fighters

